PTO/SB/33 (07-05)
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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number: 15540-0009001
	Application Number 10/632,096	Filed August 1, 2003
	First Named Inventor Jürgen-Michael Weick et al.	
	Art Unit 3742	Examiner Samuel M. Heinrich

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

☒ attorney or agent of record 45,653
(Reg. No.)

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34

/Diana DiBerardino/
Signature

Diana DiBerardino
Typed or printed name

(617) 542-5070
Telephone number

February 24, 2009
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below'.

☒ Total of 1 form is submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Jürgen-Michael Weick et al.	Art Unit	: 1725
Serial No.	: 10/632,096	Examiner	: Samuel M. Heinrich
Filed	: August 1, 2003	Conf. No.	: 1914
Title	: LASER PROCESSING MACHINE		

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF

Pursuant to United States Patent and Trademark Office OG Notices: 12 July 2005 – New Pre-Appeal Brief Conference Pilot Program, a request for a review of identified matters on appeal is transmitted with the Notice of Appeal. Review of these identified matters by a panel of Examiners is requested because the rejections of record are not proper and are without basis in view of a clear legal or factual deficiency in the rejections. All rights to address additional matters on appeal in any subsequent appeal brief are reserved.

Claims 1-10, 12-35, and 37-47 are pending, with claims 1, 18, and 30 being independent. Claims 16-29 have been withdrawn. Claims 1-10, 12-15, 30-35, and 37-47 have been rejected as being unpatentable over Applicant's Admitted Prior Art (the admitted prior art) in view of U.S. Patent No. 4,657,397 (Oehler) and U.S. Patent No. 3,691,478 (Jacobs). Claims 2 and 40-47 have been rejected as being unpatentable over the admitted prior art in view of Oehler, Jacobs, and U.S. Patent No. 6,075,223 (Harrison). Claims 3 and 31 have been rejected as being unpatentable over the admitted prior art in view of Oehler, Jacobs, and U.S. Patent No. 4,646,309 (Arisawa). Claims 4 and 32 have been rejected as being unpatentable over the admitted prior art in view of Oehler, Jacobs, and U.S. Patent No. 5,331,649 (Dacquay). Claims 5, 6, and 33 have been rejected as being unpatentable over the admitted prior art in view of Oehler, Jacobs, and U.S. Patent No. 4,112,367 (Hepner). Claims 7, 8, and 34 have been rejected as being unpatentable over the admitted prior art in view of Oehler, Jacobs, and U.S. Patent No. 6,488,626 (Lizzi). Claims 9, 10, and 35 have been rejected as being unpatentable over the admitted prior art in view of Oehler, Jacobs, and U.S. Patent No. 6,843,102 (Shulga). Claims 12-14 and 39 have been rejected as being unpatentable over the admitted prior art in view of Oehler, Jacobs, and U.S. Patent No. 5,298,716 (Ogawa). Claims 15 and 37 have been rejected as being unpatentable over

the admitted prior art in view of Oehler, Jacobs, and U.S. Patent No. 6,853,452 (Laufer). Claim 38 has been rejected as being unpatentable over the admitted prior art in view of Oehler, Jacobs, and U.S. Patent No. 4,722,090 (Haruta).

Applicant specifically asks the panel to review the issues highlighted below, and notes that all of the rejections should be reversed based on a proper interpretation of the references.

Neither the admitted prior art, Oehler, Jacobs, nor any proper combination of the three describes or suggests a measuring cell positioned downstream of a decoupling means that decouples diagnostic radiation from laser radiation that is directed to a workpiece and that contains a portion of one or more operating gases that include one or more gases of the gas atmosphere through which laser radiation is guided, one or more laser-processing machine gases that are used on a workpiece, and one or more supply gases for the laser, as recited in independent claims 1 and 30.

Applicant notes that none of the cited references discloses the basic idea of using a laser for providing both laser radiation for workpiece processing and laser radiation for gas analysis.

The admitted prior art mentions that in a laser-processing machine including a CO_2 laser, CO_2 laser radiation can be guided through a gas atmosphere and that CO_2 laser radiation can be absorbed by molecules. See the specification at page 1, lines 9-12. Additionally, the admitted prior art also mentions that a photo-acoustical effect can be measured. See the specification at page 1, lines 13-15. However, there is no suggestion in the admitted prior art of a measuring cell that is positioned downstream of a decoupling means and in the path of diagnostic radiation that is decoupled from laser radiation that is directed to a workpiece and that contains a portion of one or more operating gases that include one or more gases of the gas atmosphere through which laser radiation is guided, one or more laser-processing machine gases that are used on a workpiece, and one or more supply gases for the laser.

Realizing the deficiencies of the admitted prior art, the Examiner first cites col. 13, line 55 to col. 16 and Figs. 23-26 of Oehler, arguing that Oehler describes a "photoacoustic gas cell 68," "coupling out a partial beam," a "partial beam is supplied to a reference detector," and a "sound detector microphone 69."

Oehler relates to a radiation collection device that collects and then directs light to a gas measuring cell 68 that includes gas that is to be detected. See Oehler at abstract and col. 1, lines 5-10. Oehler explains that the radiation absorbed by the gas in the cell 68 leads to periodic pressure fluctuations, which are detected by a microphone 69. See Oehler at col. 13, lines 1-10 and Fig. 20. As the Examiner apparently realizes, Oehler mentions that it is useful to constantly monitor the intensity of the light that enters the gas cell 68 by "coupling out a partial beam not subject to the light absorption in the sample gas" and supplying the partial beam to a reference detector. See Oehler at col. 13, line 60 to col. 14, line 10. However, this passage of Oehler never suggests that the partial beam is directed to a workpiece; rather, Oehler explains that the partial beam is directed to a reference detector. See Oehler at col. 14, lines 1-2. Moreover, while Oehler mentions a partial beam, Oehler teaches away from such a design because Oehler explains that it is a "disadvantage of this arrangement that measuring and reference signals of different detectors are determined" and "it is desirable that both the measuring signal and the reference signal can be determined by the same detector." See Oehler at col. 14, lines 2-10. Thus, Oehler in fact would lead one of ordinary skill in the art to avoid decoupling of radiation in the claimed manner.

Additionally, Oehler also fails to describe or suggest that the measuring cell 68 contains a portion of one or more operating gases that include one or more gases of the gas atmosphere through which laser radiation is guided, one or more laser-processing machine gases that are used on a workpiece, and one or more supply gases for the laser. Oehler explains that the measuring cell 68 is filled with gases, but there is nothing in Oehler that indicates the gases are of any type.

The Examiner also cites Jacobs and argues that Jacobs describes in claim 1 "a high power laser and means for indicating the laser beam energy with a gas cell." Jacobs' claim 1 relates to a laser that produces a beam that is directed to a "gas cell disposed externally of said laser said gas cell being traversed by said laser beam and consisting along the beam path only of material optically transparent to said laser beam." However, Jacobs never describes or suggests that the gas cell is positioned downstream of a decoupling means that decouples diagnostic radiation from radiation from the laser that is directed to a workpiece or that the gas call contains a portion

of one or more operating gases that include one or more gases of the gas atmosphere through which laser radiation is guided, one or more laser-processing machine gases that are used on a workpiece.

Accordingly, claims 1 and 30 are allowable over any proper combination of the admitted prior art, Oehler, and Jacobs, as are dependent claims 2-10, 12-15, 31-35, and 37-47.

Neither the admitted prior art, Oehler, Jacobs, nor any proper combination of the three describes or suggests the features of the dependent claims 2-10, 12-15, 31-35, and 37-47 and the Examiner has not met the burden to make a prima facie showing that these claims are obvious.

For example, claims 9 and 35 generally recite that the machine includes a control unit for using a rinsing gas in response to the photo-acoustical effect measured. None of the cited references describes or suggests such a control unit. As another example, claim 10 recites that the control unit is formed for controlling the flow rate of one or more supply gases of the laser-processing machine and of working or cutting gases in response to the analysis of a gas atmosphere in feed lines or in a laser beam path. None of the cited references describes or suggests such control. As a further example, claim 43 recites that the operating gas to be analyzed is a laser operating gas. None of the cited references describes or suggests that a laser operating gas is to be analyzed. As another example, claim 38 recites that the laser-processing machine also includes a means for directing the portion of the laser-processing machine gas in the cell to flow back to the laser after it has been analyzed. None of the references describes or suggests such a directing means.

Moreover, the Examiner has not pointed to any features of the cited references that show the limitations in these dependent claims. Accordingly, for at least these additional reasons, the dependent claims are allowable over any proper combination of the admitted prior art, Oehler, and Jacobs.

The secondary references do not remedy the above-noted failures of the admitted prior art, Oehler, and Jacobs to describe or suggest a measuring cell positioned downstream of a decoupling means that decouples diagnostic radiation from laser radiation that is directed to a

workpiece and that contains a portion of one or more operating gases that include one or more gases of the gas atmosphere through which laser radiation is guided, one or more laser-processing machine gases that are used on a workpiece, and one or more supply gases for the laser, as recited in independent claims 1 and 30.

The secondary references (that is, Harrison, Arisawa, Dacquay, Hepner, Lizzi, Shulga, Ogawa, Laufer, and Haruta) were not relied upon to show these features. Shulga, which appears to be the most relevant of these, describes a gas sensor arrangement 1 having a measuring radiation source 7, a reference radiation source 8, a gas measuring chamber 11, a radiation detector 13, and an evaluation device 14. See Shulga at col. 4, lines 1-44 and Fig. 1. However, Shulga's gas measuring chamber 11 is not positioned downstream of a decoupling means that decouples diagnostic radiation from laser radiation that is directed to a workpiece and Shulga's gas measuring chamber 11 does not contain a portion of one or more operating gases that include one or more gases of gas atmosphere through which the laser radiation that is directed to a workpiece is guided, one or more laser-processing machine gases that are used on a workpiece, and one or more supply gases for the laser.

Accordingly, the claims are allowable over any proper combination of the cited references andapplicant submits that the final rejection should be reversed.

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: February 24, 2009

/Diana DiBerardino/

Diana DiBerardino
Reg. No. 45,653

Fish & Richardson P.C.
1425 K Street, N.W.
11th Floor
Washington, DC 20005-3500
Telephone: (202) 783-5070
Facsimile: (202) 783-2331